

# INTERNATIONAL SEARCH REPORT

Internal  
PCT/US 03/33066

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC 7 C02F1/02 C02F1/04 C02F1/20 C02F1/66 C02F1/42 C02F1/62 C02F1/64		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC 7 C02F		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, PAJ		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4 746 438 A (RIGGS JR OLEN L) 24 May 1988 (1988-05-24) column 1, line 5-19; claims 1-3; figure 1 column 2, line 46 -column 3, line 5 column 4, line 49-64 column 5, line 13-26 ---	1-112
Y	US 4 235 715 A (WIEGERT ROBERT E) 25 November 1980 (1980-11-25) column 1, line 6 -column 2, line 60; claims 1-3,7; figure 2 column 3, line 55-61 column 4, line 52-66 column 5, line 7-10,47-52 --- -/--	1-112
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.		
* Special categories of cited documents : *A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *G* document member of the same patent family		
Date of the actual completion of the international search 3 March 2004		Date of mailing of the international search report 11/03/2004
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer Kurtulan, M

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2 807 582 A (APPLEBAUM SAMUEL B) 24 September 1957 (1957-09-24) column 1, line 15-32; figure 1 column 2, line 43-50, 63-72 column 4, line 18-22; claims 1, 6 ---	1-112
Y	US 4 323 430 A (GLASSMAN DONALD ET AL) 6 April 1982 (1982-04-06) column 1, line 53 - column 2, line 3; figures 1, 2 column 3, line 1-4 column 7, line 115 - column 8, line 64; claims 1, 10, 15, 32 -----	1-112

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Information on patent family members

International

Search No

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4746438	A	24-05-1988	NONE	
US 4235715	A	25-11-1980	AU 5522480 A DK 67080 A EP 0015098 A1 ES 8102994 A1 IE 800293 L JP 55116485 A	21-08-1980 17-08-1980 03-09-1980 16-05-1981 16-08-1980 08-09-1980
US 2807582	A	24-09-1957	NONE	
US 4323430	A	06-04-1982	AU 545054 B2 AU 7920782 A BR 8201103 A CA 1163951 A1 DE 3202903 A1 FR 2501521 A1 GB 2094649 A , B JP 57162690 A RO 85109 A1 SE 8201286 A	27-06-1985 23-09-1982 11-01-1983 20-03-1984 28-10-1982 17-09-1982 22-09-1982 06-10-1982 24-09-1984 17-09-1982